lines 32-47. That is wrong because those portions of Hall specifically refer only to silicon.

At other locations Hall refers generally to semiconductor devices. However, the invention is not directed toward all semiconductor devices, but rather to large band gap devices and, in particular, silicon carbide. The particular process steps of Hall that are relied upon by the rejection are disclosed only in conjunction with silicon, not large band gap semiconductors and not silicon carbide.

The rejection further finds that it would be obvious to modify Kiritani to include the annealing step of Hall. The alleged motivation is that Hall provides an ohmic contact having reduced silicon solubility and improved etching properties. In other words, the conventional silicon carbide ohmic contact of Kiritani could be improved by using the silicon processing techniques of Hall.

That finding has at least three errors. First, Kiritani does not indicate any need for such a modification. Kiritani says that one may achieve an ohmic contact by depositing aluminum and heating the substrate to 900-1000 °C. According to Kiritani that procedure is sufficient to produce an ohmic contact. Since Kiritani's 900-1000 °C heating step is sufficient to produce an ohmic contact, there is no motivation to modify Kiritani to use the procedures found in Hall.

Kiritani is silent about any deficiency in the solubility of aluminum in silicon carbide or about problems with etching aluminum on silicon carbide. However, even if one assumes there are such problems, nothing in Hall would lead on skilled in the art to modify the Kiritani process to use Hall's techniques because Hall's techniques do not apply to silicon carbide.

As a source of motivation, the rejection relies upon "reduced silicon solubility" to motivate one to modify Kiritani. The Applicants assume the rejection refers to the reduced silicon solubility mentioned in Hall. However, such a motivation is inconsistent with and likely not useful or desired by Kiritani because Kiritani does not use silicon – it uses silicon carbide. There is no disclosure in Hall that annealing at 500 °C will reduce the solubility of aluminum in silicon carbide.

As a third source of error, the rejection refers to improved etching properties of annealed aluminum on silicon as a motivation. Hall mentions that his techniques provide

a way to reduce the dissolution of silicon in aluminum. However, no reference mentions that the dissolution of aluminum in silicon carbide is a problem. Likewise, neither Hall nor any other reference shows that the Hall technique reduces the dissolution of aluminum in silicon carbide. Hall only discusses the dissolution of aluminum in silicon, not silicon carbide. Absent such a disclosure, there is no motivation to use the technique of Hall on a silicon carbide substrate.

The Response observes that "nowhere in the secondary [Hall] reference the invention [of the secondary reference] is limited to only silicon devices." That observation is not an adequate grounds for rejection. While the observation is correct, the conclusion is wrong. In effect, the observation states that everything not expressly excluded is included. That observation is simply another way of saying that the reference does not show silicon carbide. Just because a reference does not exclude a claimed limitation or element, does not mean the claimed element is shown or suggested. Moreover, it is not a condition of patentability that a reference teaches away from the invention. It is sufficient that, as here, the reference fails to show the invention

In summary, the claims are patentable over the art and rejections of record for the reasons given above. A notice of allowance is requested.

Respectfully submitted,

7/21/03
Date

Thomas R. FitzGerald
Registration No. 26, 730

Thomas R. FitzGerald, Esq.
16 E. Main Street, Suite 210
Rochester, New York 14614-1803
Telephone: (585) 454-2250
Fax: (585) 454-6364